



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D135-751-011
Job Sheet 175817



Part No: D135-751-011

Job Qty: 1 ea

Part Name: Skidtube with Standard Wearplates Fits LH or RH



Part Weight: 0-lbs

Status: Scheduled

Priority: Medium

Job Created: 4/11/18

Job Tracking No:

Due Date: 5/4/18

Created By: Linda Lacelle

Type: SOLD

Description:

Note: DWG DSI 9661 REV A, D3507 REV D IPP Rev:A 44353 New Issue JLM IPP Rev:B 06-12-18 As per Rev B JLM IPP Rev:C 07-12-11 ECN 1036 as per revB DD IPP Rev D 08.11.04 Added DT9431 to sequence 5 EC verf DD IPP Rev E 10.02.22 per PAR 09-043 EC verified: DD IPP Rev:F 10.06.09 remove seq110 DD verf:EC IPP Rev G 10.09.17 added D3507-1-bent EC verified:DD IPP REV:H 13.12.11 ECN13-619/ CHG002 DD VERF:JLM

Ship Via:

Bill of Materials



Container No: S060265



Part: D135-751-011

Job No: 175817

Serial No/Batch: S060265

Revision:
Inspector:

Date: 04/12/18

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

S060265

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		5/3/18	0.00	0.00	Start Up Skidtubes-1		BE
120	Skidtubes	1 pcs		5/3/18	0.00	0.80	Skidtubes-1		BE
140	QC	1 pcs		5/3/18	0.00	0.00	QC5		BE
150	HandFinish	1 pcs		5/3/18	0.00	0.33	HandFinish1		SA 18-04-18
160	QC	1 pcs		5/3/18	0.00	0.00	QC7-1		BE
170	Skidtubes	1 pcs		5/3/18	0.00	1.00	Skidtubes-1		mcc DAS
180	QC	1 pcs		5/3/18	0.00	0.00	QC10		38
185	HandFinish	1 pcs		5/3/18	0.00	0.10	HandFinish6		SA 18-04-24
187	QC	1 pcs		5/3/18	0.00	0.00	QC7-1		BE
190	Skidtubes	1 pcs		5/3/18	0.00	0.77	Skidtubes-1		BE DAS
200	QC	1 pcs		5/3/18	0.00	0.00	QC5		38
210	HandFinish	1 pcs		5/3/18	0.00	0.08	HandFinish2		SA 18-05-03
220	SprayPaint	1 pcs		5/3/18	0.00	0.25	Outsource		39794 08/10/2018
230	QC	1 pcs		5/3/18	0.00	0.00	QC14		18-3-07
260	HandFinish	1 pcs		5/4/18	0.00	0.74	HandFinish4		18-3-07
270	QC	1 pcs		5/4/18	0.00	0.00	QC5		38
280	Packaging	1 pcs		5/4/18	0.00	0.00	Packaging1-1		MAY 09 2018
290	QC	1 pcs		5/4/18	0.00	0.00	QC4		Smr
295	DC	1 pcs		5/4/18	0.00	0.00	DC		21
300	Packaging	1 pcs		5/4/18	0.00	0.00	Packaging3-1		Smr
310	QC21-FG	1 Ea		5/4/18	0.00	0.00	QC21		MAY 10 2018

Part Op 120 - 1-Cut Aft end as per dwg D3507 3-Drill Aft & Fwd Cap holes using DT8678 & DT8901 4-Locate DT8870 & Drill Descriptions: Ground wire hole on top of Tube. 6-Locate DT8870 with #30 cleco in Ground wire hole ,then Pilot Drill all X-Bolt holes using #30" drill. ****DO NOT OPEN AFT CAP HOLES***** 7-Open crossbolt holes to 0.3125" (3 per side). Drill pilot holes for wearplates using Dt8868,Use DT8892 FOR REAR WEARPLATE HOLES. 8-Open six rear wearplate holes using DT8892.Open all wearplate holes to 0.297" 9-Open ground wire hole .297" section E-E 10-Open Aft & Fwd Cap holes using .208" drill. 11-Bore out aft end of tube as per Dwg D3507 & Detail "B". 12- Section G-G holes must be laid out manually, open to #30. 13-Deburr holes.

170 - 1-Open X-Bolt holes to .375"(1 Places) & .500"(2Places) as per Dwg D3507. and section G-G to .750" (2 places) 2-Counter Sink X-BOLT holes as per Dwg D3507 3-Deburr and blow out chips from inside of tube. 4-Bond web as per Dwg D3507 & QSI 015 start time : 18-04-18 5-Weld x-bolt spacers as per Dwg D3507 and Detail C-C & D-D and G-G 7-Drill Rivet Holes as per Dwg D3507 Using Dt8871A&B 8-Deburr Rivet holes.

185 - RE-ALODINE ONLY

190 - 1-Rivet D3506-1/-3 as per Dwg D3507.

210 - Touch-up alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

220 - 1- Apply Primer as per QSI 005 4.2.1.3.3 and dwg A/R Primer Batch: 2- Paint two coats of White paint as per QSI 005 4:2 and dwg A/R Paint Batch:

260 - 1- Install Wearplate &Ground Wire inserts as per Dwg D3507. 1-Inspect for Foreign objects 2-Install Fwd & Aft caps as per Dwg D3507 And Detail "A" & "B" 3-Install Wearplates as per Dwg D3507 , Note:Install (1) Bolt and (1) washer on Ground Wire insert on top of tube Do not Install Scews where indicated on Dwg(Note #6) 4-assemble o'ring to plug as per dwg D3492 and apply o'ring lube 5- Wing Walk as per Dwg D3507 and QSI 005 4.4 Batch:

295 - Photocopy bluefile & type labels per PPP D135-751-011 CHG002

300 - Identify and pack for shipping as per PPP D135-751-011 PPP Rev:

003087

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D3507-1-BENT	Skidtube Assembly EC135	1 Ea (1 ea)	90-Start up Operation	B16194-77
D3504-1	Crossbolt Spacer	2 Ea (2 ea)	170-Skidtubes	500521
D3504-3	Crossbolt Spacer	1 Ea (1 ea)	170-Skidtubes	81051004
D3504-5	Crossbolt Spacer	2 Ea (2 ea)	170-Skidtubes	8153745
D3505-1	Web	1 Ea (1 ea)	170-Skidtubes	5008521
D3506-1	Doubler	4 Ea (4 ea)	190-Skidtubes	8158525
D3506-3	Doubler	2 Ea (2 ea)	190-Skidtubes	B 131267
MS20601-AD4W3	Rivet	12 Ea (12 ea)	190-Skidtubes	5016824
ALS4-1032-225	Rivnut	1 Ea (1 ea)	260-HandFinish	5034386
ALS7-1032-130	Rivnut	38 Ea (38 ea)	260-HandFinish	5045668
AN3C4A	Bolt	31 Ea (31 ea)	260-HandFinish	5041114
AN3C5A	Bolt	2 Ea (2 ea)	260-HandFinish	5057153
AN526C1032R10	Screw	2 Ea (2 ea)	260-HandFinish	FM137651-4
D2965	Cap	1 Ea (1 ea)	260-HandFinish	5045482
D2965-3	Cap	1 Ea (1 ea)	260-HandFinish	F126369
D3492-1	Plug	4 Ea (4 ea)	260-HandFinish	5052900
D3492-3	Plug	4 Ea (4 ea)	260-HandFinish	5053031
D3492-7	Plug	2 Ea (2 ea)	260-HandFinish	F106110
D4918-047	Wearplate Aft	1 Ea (1 ea)	260-HandFinish	5036145
D4918-1	Wearplate Fwd	1 Ea (1 ea)	260-HandFinish	5007120
D4918-3	Wearplate Center Fwd	1 Ea (1 ea)	260-HandFinish	5015576
D4918-5	Wearplate Center Aft	1 Ea (1 ea)	260-HandFinish	F165002
NAS1149C0332R	Washer	33 Ea (33 ea)	260-HandFinish	5044236
NAS1611-007	O-Ring	2 Ea (2 ea)	260-HandFinish	F103697
NAS1611-010	O-Ring	4 Ea (4 ea)	260-HandFinish	5072098
NAS1611-013	O-Ring	4 Ea (4 ea)	260-HandFinish	5034467
AN3C4A	Bolt	8 Ea (8 ea)	280-Packaging	FM138238-40
D3512-041	Wearplate	2 Ea (2 ea)	280-Packaging	5040165
NAS1149C0332R	Washer	8 Ea (8 ea)	280-Packaging	5049837

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	D3507-1-BENT	1	3	0
170-Skidtubes	D3504-1	2	6	0
	D3504-3	1	31	0
	D3504-5	2	4	0
	D3505-1	1	4	0
190-Skidtubes	D3506-1	4	25	0
	D3506-3	2	18	0
	MS20601-AD4W3	12	249	0
260-HandFinish	ALS4-1032-225	1	5,700	0
	ALS7-1032-130	38	2,896	0
	AN3C4A	31	2,027	0
	AN3C5A	2	2,129	0
	AN526C1032R10	2	93	0
	D2965	1	91	0
	D2965-3	1	41	0
	D3492-1	4	147	0
	D3492-3	4	69	0
	D3492-7	2	45	0
	D4918-047	1	10	0
	D4918-1	1	9	0
	D4918-3	1	8	0
	D4918-5	1	9	0
	NAS1149C0332R	33	6,942	0
	NAS1611-007	2	296	0
	NAS1611-010	4	625	0
	NAS1611-013	4	421	0
280-Packaging	AN3C4A	8	2,027	0
	D3512-041	2	4	0
	NAS1149C0332R	8	6,942	0

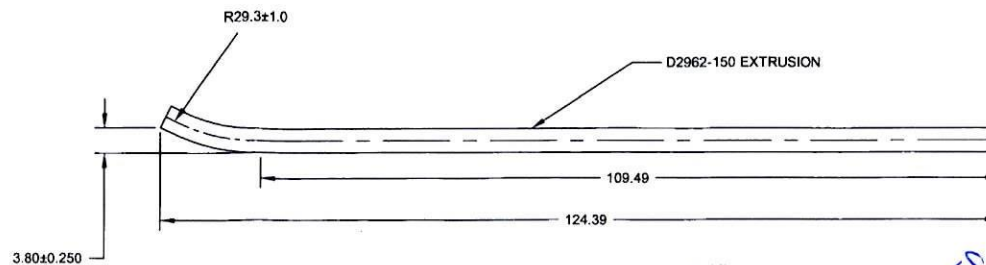
Part Specifications
Specifications could not be found.

Plex 4/11/18 7:27 AM dart.lacelle.linda

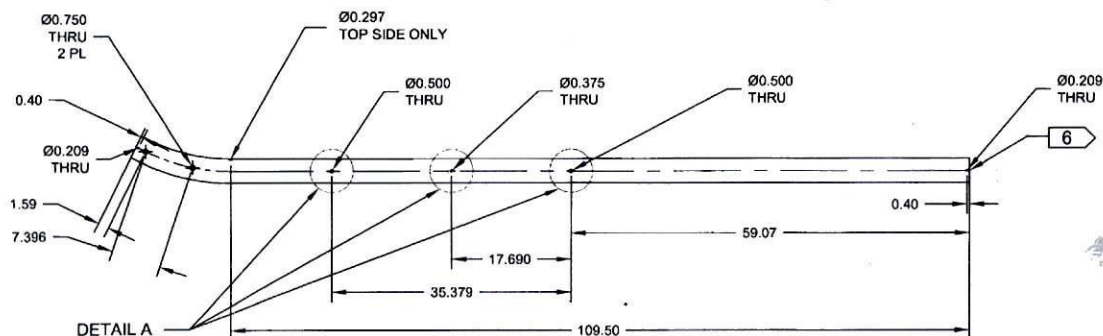
Qty	Part Number	Description
X	D3507-041	SKIDTUBE ASSEMBLY
1	D2962-150	EXTRUSION
1	D2965	CAP
1	D2965-3	CAP
4	D3492-041	PLUG ASSEMBLY
4	D3492-043	PLUG ASSEMBLY
2	D3492-047	PLUG ASSEMBLY
2	D3504-1	CROSS BOLT SPACER
1	D3504-3	CROSS BOLT SPACER
2	D3504-5	CROSS BOLT SPACER
1	D3505-1	WEB
4	D3506-1	DOUBLER
2	D3506-3	DOUBLER
1	D4918-1	WEARPLATE
1	D4918-3	WEARPLATE
1	D4918-5	WEARPLATE
1	D4918-047	WEARPLATE
38	AELS-1032-130	INSERT
1	AELS-1032-225	INSERT
31	AN3C4A	BOLT
2	AN3C5A	BOLT
2	AN526C1032-10	SCREW
33	AN960C10L	WASHER
12	MS20501AD4W3	RIVET

GENERAL NOTES:

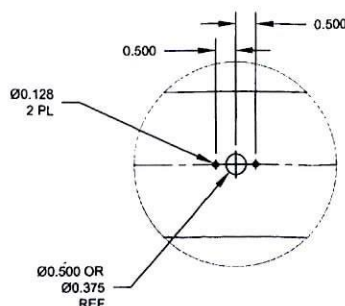
- 1) MATERIAL: N/A
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO INSERTING D3505-1 WEB.
STANDARD: PRIME (REF 4.2.1.3.3) AND PAINT WHITE PER DART QSI 005 4.2.
OPTIONAL: POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.3.
BLACK ANTI-SKID PAINT AS INDICATED TO 1.00 ABOVE CENTERLINE PER DART QSI 005 4.4 (OPTIONAL)
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) DIMENSIONS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART B/N PER DART QSI 044 6.4 (VIBRATING STYLUS) ON I.D. OF TUBE.
- 7) WEIGHT: 24.1 LB (FROM IIN-D135-751)
- 8) WELDING TO BE DONE PER DART QSI 004
- 9) INSERT D3505-1 WEB TO LOCATION SHOWN OFF AFT END OF SKIDTUBE AND BOND WEB INTO OUTER TUBE WITH NON-STRUCTURAL SIKAFLEX-241/291 ADHESIVE PER DART QSI 015 AFTER BENDING
- 10) USE DART DRILL TEMPLATE DT8868 TO LOCATE AND DRILL Ø0.297 HOLES (38 PLACES) FOR WEARSHOE INSERTS. INSTALL AELS-1032-130 PER SECTION C-C (38 PLACES) AFTER FINISH. SEAL WEARPLATE BOLTS WITH SIKAFLEX-241/291.
- 11) DO NOT INSTALL AN3C4A BOLTS AND AN960C10L WASHERS IN INDICATED LOCATIONS



D3507-1 BENDING/CUTTING DETAIL



D3507-1 DRILLING DETAIL



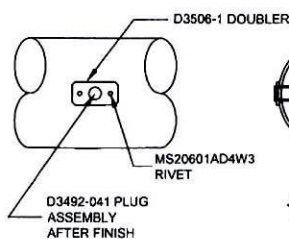
DETAIL A
TYP, 6 PL
SCALE 3:10

D	REMOVE D3558-X GASKETS, D4918-X WAS D3508-X REVISE FINISH TO ADD PAINT AS THE PREFERRED FINISH. REVISED NOTES	DW	13.08.30
C	ADD D3504-5, FOR SKID GEAR DEFLECTOR; CHANGE FWD CAP BOLT TO AN526C1032-10 SCREW	DC	07.09.19
B	ADD GASKET, CHANGE HARDWARE MAT'L	PH	06.11.01
A	NEW ISSUE	PH	06.04.21
REV.	DESCRIPTION	BY	DATE

DESIGN	DW	DART AEROSPACE USA, INC KENT, WA
DRAWN	DW	
CHECKED	UP	
MFG. APPR.	AS	
APPROVED	MT	
DE APPR.	CH	
DATE	13.08.30	

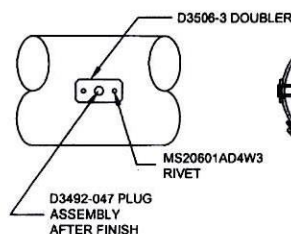
DRAWING NO.	REV. I
D3507	SHEET 1 OF 2
TITLE	SCALE
EC 135 SKIDTUBE	NT

COPYRIGHT © 2013 BY DART AEROSPACE USA, INC
 THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS
 NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT
 WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.



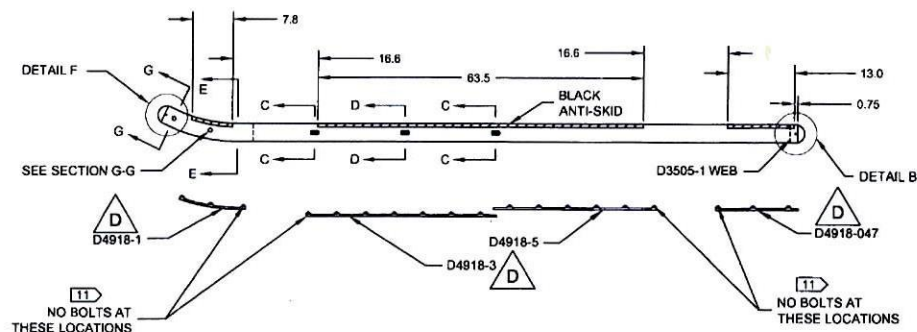
SECTION C-C
(SCALE 3:10)

- D3504-1 CROSS BOLT SPACER**
- AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.500 HOLES ONLY:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3504-1 CROSS BOLT SPACER 2 PL
 3. WELD INTO PLACE AND GRIND FLUSH
 4. IF REQUIRED, PASS Ø0.404 (Y" DRILL) THRU HOLE
 5. INSTALL D3506-1 DOUBLER 4 PL USING MS20601AD4W3 RIVET 8 PL
 6. AFTER FINISH, INSTALL D3492-041 PLUG ASSEMBLY 4 PL

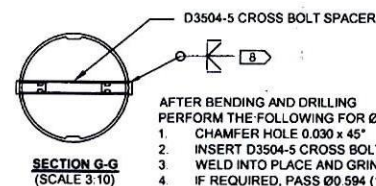


SECTION D-D
(SCALE 3:10)

- D3504-3 CROSS BOLT SPACER**
- AFTER BENDING AND DRILLING ASSEMBLY
PERFORM THE FOLLOWING FOR Ø0.375 HOLES ONLY:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3504-3 CROSS BOLT SPACER 1 PL
 3. WELD INTO PLACE AND GRIND FLUSH
 4. IF REQUIRED, PASS Ø0.277 (J" DRILL) THRU HOLE
 5. INSTALL D3506-3 DOUBLER 2 PL USING MS20601AD4W3 RIVET 4 PL
 6. AFTER FINISH, INSTALL D3492-047 PLUG ASSEMBLY 2 PL

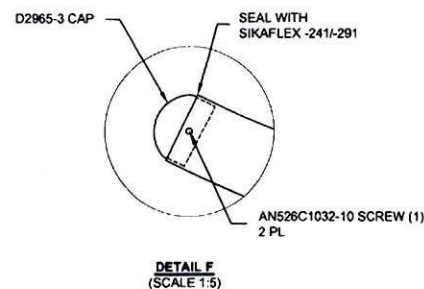


D3507-041 ASSEMBLY DETAIL

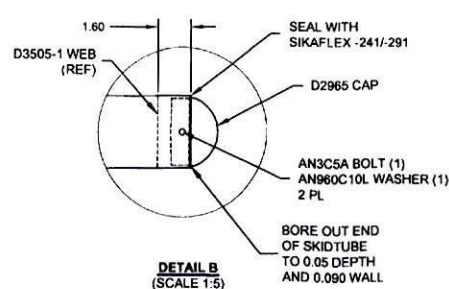


SECTION G-G
(SCALE 3:10)

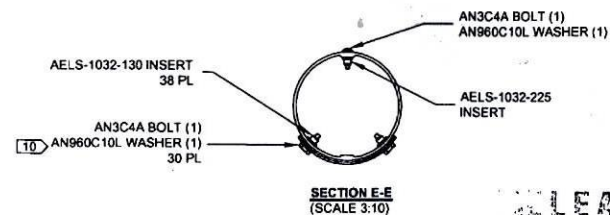
- AFTER BENDING AND DRILLING
PERFORM THE FOLLOWING FOR Ø0.750 HOLES ONLY:
1. CHAMFER HOLE 0.030 x 45°
 2. INSERT D3504-5 CROSS BOLT SPACER 2 PL
 3. WELD INTO PLACE AND GRIND FLUSH
 4. IF REQUIRED, PASS Ø0.594 (19/32 DRILL) THRU HOLE
 5. AFTER FINISH, INSTALL D3492-043 PLUG ASSEMBLY 4 PL



DETAIL F
(SCALE 1:5)



DETAIL B
(SCALE 1:5)



SECTION E-E
(SCALE 3:10)

DESIGN	DW	DART AEROSPACE USA, INC	
DRAWN	DW	KENT, WA	
CHECKED	GP	DRAWING NO.	REV. D
MFG. APPR.		D3507	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		EC 135 SKIDTUBE	NTS
DATE	13.08.30	COPYRIGHT © 2013 BY DART AEROSPACE USA, INC THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

RELEASED
2013-12-10



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039794**

Supplier: ATE003-VC
Atelier Debosselage
358 Principale
Calumet
QC
J0V 1B0 Canada
Phone: 819 242 5633

PO No: PO039794
PO Date: 5/4/18
Due Date: 5/7/18
Purchase Order Revision:
Revision Date:
Ship-To Contact: Lavoie, Chantal
clavoie@dartaero.com

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

Via: Ground
Pymt Terms: Net 30
Freight Terms:
Special Comments:

Items

Line Item	Job	Part	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (CAD)	Extended Price
1	175051	D350-636-011	Skidtube LH, Std Wearplates, DART (Apical) Cylindrical/Aerazur Float Comp.	Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$225.00/pcs	\$225.00
	175052			Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$225.00/pcs	\$225.00
Sub Total:						2	0	2		\$450.00
2	175054	D350-636-012	Skidtube RH, Std Wearplates, DART (Apical) Cylindrical/Aerazur Float Comp.	Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$250.00/pcs	\$250.00
	175060			Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$250.00/pcs	\$250.00
Sub Total:						2	0	2		\$500.00
3	175817	D135-751-011	Skidtube with Standard Wearplates Fits LH or RH	Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$225.00/pcs	\$225.00
	175818			Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$225.00/pcs	\$225.00
Sub Total:						2	0	2		\$450.00
4	175481	D3391-023	Mid Tube Assembly	Firmed	5/7/18	1 pcs	0 pcs	1 pcs	\$0.00/pcs	\$0.00

Line Item Note RE-WORK

Grand Total: \$1,400.00

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Plex 5/4/18 10:02 AM dart.lavoie.chantal

Change Record

PAGE 1 OF 1

Part Number: D135-751-011

Description: SKIDTUBE

[illegible]

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								